

## **Remarks**

Reexamination and reconsideration of the rejections are hereby requested.

The present invention facilitates electricity transmission contracts by providing a strict static tie-line control system for implementing transactions, particularly inter-regional transactions, within the confines of a deregulated power industry. Entities such as power pools and utilities in the same geographical area have cooperated in order to prevent major blackouts in their part of the interconnection. Utilities are often grouped into regions such as Northeast United States, Western United States, Mid-West United States and the present invention is particularly related to transactions involving the purchase and sale of electricity between and among regions.

In one aspect, the invention is a system and method for tie-line flow control among selling entities by enabling a coordinating entity to facilitate implementation of transmission contracts for purchasing entities. The system will provide optimal market clearing services within an environment of open access transmission requirements. In this aspect, the system of the invention receives requests for inter-regional transactions in the form of request bid curves from selling entities and in the form of demand bid curves from purchasing entities. At a selected time interval the system will synchronize the bid curves and between synchronizing intervals, iterate information with the selling and purchasing entities to ensure clearing of supply and demand bids at a clearing time so that tie-line real and reactive power flows on the tie-lines interconnecting selling entities are the same. Preferably, the selected time interval for synchronization is daily, weekly, monthly and/or seasonally but any time interval is contemplated. The system will communicate to the selling and purchasing entities accepted tie-line flow quantities and corresponding prices at the clearing time. In a preferred embodiment, the system of the invention will clear the supply and demand bids by application of a clearing algorithm which, subject to a technical flow law based on electrical charge conservation, minimizes the sum of deviations between tie-line flow controlled by the selling entities and tie-line flow caused by all inter-regional transactions.

A feature of the present invention is the well-defined information flow between the buyers and sellers of transmission services, physically tractable transmission products (tie-line

flows, real and reactive) and tariffs with the right incentives to provide a value-based service to the transmission system users.

Claims 2 and 10 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The examiner objects to the recitation in the claim of Kirchoff's Current Law. As is well known, Kirchoff's Current Law is merely a statement of electrical charge conservation as set out in any engineering textbook. In response to the rejection, claims 2 and 10 have been amended to eliminate the terminology "Kirchoff's Current Law" and to replace it with "charge conservation." Reconsideration is requested.

Claims 1-18 stand rejected under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph. The examiner has asked for clarification of several of the terms used in the claims. First of all, the examiner has questioned the language "synchronizing the bid curves." As explained in the application, information flow in the form of request bid curves and demand bid curves are synchronized on a daily, weekly, monthly, and/or seasonal time interval. As explained on page 17 of the specification, there are three distinct times involved in the method and these times are synchronized in the system of the invention.

Next the examiner questions the language "iterate information with the selling and purchasing entities." The examiner's attention is directed to the specification at page 8 beginning at line 12 which describes in detail the market clearing process. The process is summarized in five steps. Note that after step 5 there is an instruction to go back to step 1 which is the iterative nature of the process. The examiner has indicated that the term "inter-regional" is vague and indefinite in that it is subjective. This term has been removed from the claims so as to further prosecution. Claim 6 has been amended into proper markush form. As to claim 7, the examiner asks for clarification as to "the pseudo algorithm stores in the memory of the computer causing this step." The examiner is requested to clarify what he means by this statement and the undersigned will try to comply.

Claims 2 and 10 recite the application of a clearing algorithm that minimizes a sum of three entities that are specified in the specification. The examiner's attention is directed to the detailed equations and discussion on page 12 of the application.

Claims 16, 17 and 18 have been cancelled.

The pending claims also stand rejected under 35 U.S.C. § 103 as being unpatentable over the IEEE Control Systems magazine article. The examiner has merely tracked the language of the claims and states that the limitations are taught in the article. The examiner repeatedly points to page 32 of the article. A careful review of this reference with particular emphasis on page 32 shows that material claim limitations are missing. In a section entitled “Physical Markets for Electricity” the article gives an example for understanding the decision process facing producers in a deregulated marketplace. The article suggests that a producer wishing to sell power submits a bid curve to an exchange. This section does not, however, teach or suggest the limitations in the claims and as elaborated upon in the specification, for example, on page 8. The paper does not suggest synchronizing the request and demand bid curves at a selected time interval nor does it teach iterating information with the selling and purchasing entities to ensure clearing of supply and demand bids at a clearing time so that tie-line real and reactive power flows on the tie-lines interconnecting the selling entities are the same.

For the foregoing reasons, it is submitted that the claims, as amended herein, are in condition for allowance and early favorable action is requested.

Respectfully submitted,

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